



# ANALYSIS OF CHATGPT IMPACT ON TEACHERS AND STUDENTS.

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## ABSTRACT

The integration of artificial intelligence into education is an inevitable phenomenon. Intelligent tools offer personalized instruction, automated assessment, and the use of virtual assistants or chatbots. While chatbots have been used for educational purposes, ChatGPT represents a new intellectual revolution in this field. Its potential in education is significant, but it also comes with both benefits and risks. In this research paper, we explore the impact of ChatGPT on students, highlighting the positives and negatives. We also discuss the opportunities it presents for teachers.

**KEYWORDS:** Artificial Intelligence, Education, Chatbots, ChatGPT, Future Education

## 1. INTRODUCTION

Chatbots are AI-based programs that can interact with humans by processing incoming messages, understanding user intentions, and generating relevant responses. They are used on various platforms like websites, mobile apps, and social media. These systems utilize natural language processing algorithms and machine learning techniques to understand text communication and provide meaningful responses. It's fascinating how these intelligent systems have become an integral part of our digital interactions.

Chatbots like ChatGPT have found applications in various fields, including customer service, virtual assistants, and education. The launch of ChatGPT in 2022 created quite a buzz, and now it seems like everyone has heard about this AI. Research by Lo suggests that updating assessment methods and institutional policies, as well as providing training for teachers and educating students, are necessary to adapt to the impact of ChatGPT in education. Tlili et al.'s study also highlights the importance of considering research directions to ensure the safe and responsible use of chatbots, particularly ChatGPT, in education. This article explores the potential of ChatGPT in education, examining both the opportunities and threats for students and teachers. It's fascinating to see how AI is shaping the educational landscape.



## 2. CHATBOT

Chatbots are AI systems that can communicate and respond to

users' questions or instructions. They can be accessed through websites, apps, social media platforms, or even voice interfaces. It's pretty cool how technology is revolutionizing education.

Chatbots in education can provide immediate answers and assistance to students, unlike Q&A forums where it can take hours to get a response. Virtual assistants can even act as virtual teachers, engaging in conversation and interaction with students, accessing online content to generate answers. It's like having a teacher available anytime, anywhere.

In India, according to Sandu's survey, almost half of the students were using chatbots for communication with their educational institution as early as 2020. Chatbots are seen as the fastest communication tool.

Additionally, many mobile phone manufacturers have their own voice-activated virtual assistants that users prefer for convenient functions. There are several voice-activated virtual assistants available from leading mobile phone manufacturers. For example, Siri by Apple, Alexa for Amazon Echo, Google Assistant, and Xiaoice by Microsoft. These assistants can perform various tasks like searching for information, managing calendars, playing music, and more. It's amazing how technology has made our lives more convenient. Here are some of the more relevant examples:

- **SIRI:** Siri is a virtual assistant developed by Apple for the iOS operating system. It assists users with various tasks such as searching for information, sending messages, managing calendars, and checking the weather. Siri is designed to make life easier for iPhone and iPad users by providing helpful and convenient features.
- **ALEXA:** Alexa is a chatbot designed for Amazon Echo smart speakers. It can understand and respond to voice commands, assisting with tasks like home automation, playing music, and searching for information. It's amazing how Alexa can make our lives more convenient and enjoyable with its wide range of capabilities.
- **GOOGLE ASSISTANT:** Google Assistant is a virtual assistant developed by Google that can understand and

respond to users' questions and instructions. It's a handy tool for tasks like searching for information, managing calendars, navigating, translating, and much more. With Google Assistant, you have a helpful companion at your fingertips, ready to assist you with a wide range of activities.

- **XIAOICE:** Xiaoice is a popular Chinese chatbot developed by Microsoft. It's known for its emotional intelligence, as it can interpret and respond to human emotions. Xiaoice is designed to engage in longer conversations with users, making interactions more meaningful and personal.

Roos's work in 2018 highlighted the wide range of uses and potential functions of chatbots in education. But with the release of ChatGPT, our understanding of chatbots and artificial intelligence has reached new heights. ChatGPT, developed by OpenAI, is an AI-based language model that utilizes deep learning techniques. It's capable of multilingual communication, understanding questions, generating instructions and answers, and even learning from incorrect responses. The potential of ChatGPT in education is immense, but it's crucial to use it within a reasonable framework, especially for students. A positive first impression is important, as it can influence their overall experience.

### 3. ALGORITHMS USED FOR CHATGPT:

The algorithm used for ChatGPT is called the GPT (Generative Pre-trained Transformer) algorithm. It's a type of deep learning model that utilizes a transformer architecture. This architecture allows the model to effectively process and understand the relationships between words in a given text.

The GPT algorithm is "pre-trained" on a large dataset containing parts of the Internet. This helps the model learn grammar, facts, and some level of reasoning. It then goes through a "fine-tuning" process where it is trained on a more specific dataset with a narrower focus, such as educational content.

During training, the model learns to predict the next word in a sentence based on the context of the previous words. This helps it develop an understanding of language and generate coherent responses. The model is trained using a process called "unsupervised learning," where it learns from the patterns in the data without explicit instructions.

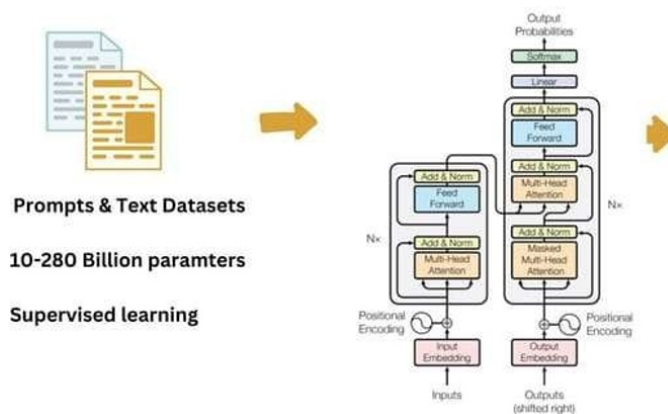
It's important to note that while the GPT algorithm is powerful and can generate impressive responses, it also has limitations. It may sometimes produce incorrect or nonsensical answers, and it can be sensitive to the input phrasing. The model's responses are based on patterns it has learned from the training data and may not always reflect accurate or up-to-date information.

Overall, the GPT algorithm used in ChatGPT is a sophisticated deep learning model that enables the AI to understand and generate text based on the patterns it has learned.

However, it's important to use its responses critically and verify information from reliable sources when necessary.

## Pre-Training

## Transformer



### 4. THE POTENTIAL OF CHATGPT IN EDUCATION:

When it comes to analyzing the impact of AI-based systems, like chatbots, in education, we need to consider two main aspects: the impact on students and the impact on teachers' work. By understanding these aspects, instructors can draw important conclusions and make informed decisions when incorporating chatbots into their teaching practices. It's crucial to consider factors such as student engagement, learning outcomes, and the role of teachers in facilitating the use of AI-based systems. By taking these aspects into account, instructors can effectively leverage the potential of chatbots to enhance the learning experience for students while supporting their own teaching methods.

#### Impact on students:

ChatGPT enables interactive learning and facilitates question-and-answer based communication. Students can ask ChatGPT questions, and it can provide answers, helping them expand their knowledge and understanding of the material. This form of education allows students to directly interact with an intelligent system, receiving support in their learning process. It's an exciting opportunity for students to engage with technology and enhance their educational experience.

#### Personalized Help:

ChatGPT has the ability to provide personalized help to students. It can address specific questions and problems, offering different answers and explanations tailored to each student's needs. This personalized support is incredibly valuable, especially when students don't have immediate access to teachers or tutors.

#### Fast And Available Help:

ChatGPT is always available and can provide fast answers to students' questions and problems. This immediate help can be incredibly valuable, especially when students need assistance in situations where human help may not be readily available. However, it's important to remember that while ChatGPT can offer quick solutions, it's also essential to explore its full potential.

#### Language Learning:

ChatGPT can indeed be a valuable tool for language learning. Through interactive communication, students can practice the target language with ChatGPT and improve their grammar and language skills. ChatGPT can engage in conversations with students, answering their questions about language learning and providing an interactive and dynamic language learning experience.

#### Incomplete or Incorrect Information:

When communicating with ChatGPT, it is possible that the responses generated may contain incomplete or incorrect

information. This can be problematic, especially if students are unable to identify or correct these mistakes. It's important to be cautious and verify the information received to avoid being misled or acquiring incorrect knowledge.

- **Privacy And Security:**

Privacy and security are indeed important considerations when it comes to AI systems like ChatGPT. It's crucial to ensure that student data is properly protected and doesn't fall into unauthorized hands. Companies and developers need to address privacy concerns and implement robust security measures to safeguard the data collected during interactions with AI systems.



#### **Impact on Teachers:**

- **Support Materials And Resources:**

ChatGPT can indeed be a valuable tool for teachers in producing support materials and resources. Teachers can utilize ChatGPT to generate supplementary materials, such as examples or exercises, that align with the curriculum. This can provide students with a wider range of content and enhance their learning experience with richer and more varied resources.

- **Generate Tests And Assignment:**

ChatGPT can help teachers create tests, assignments, and homework. Teachers can generate questions using ChatGPT, and the system can provide answers for students. This can effectively test students' knowledge and help teachers monitor their progress.

- **Research Tool:**

ChatGPT can indeed serve as a valuable research tool for teachers.

They can ask questions about research topics or teaching issues, and ChatGPT can provide extensive information to expand their knowledge. This continuous learning and access to information can greatly support teachers in improving their teaching practices.

#### **Considerations:**

- **Critical thinking and interpretation:**

It is crucial for both teachers and students to approach the content generated by AI systems, like ChatGPT, with a critical mindset. Recognizing the limitations and potential errors or shortcomings is important. Teachers should actively monitor and interpret the content, ensuring its accuracy and relevance for their students. By being actively involved, they can guide students in developing their own critical thinking skills and discernment when using AI-generated information.

- **Supervision and management:**

Teachers play a crucial role in supervising the use of AI systems like ChatGPT. It is important for them to have

control over the content generated and ensure its accuracy and reliability. By guiding students in the correct use of AI systems, teachers can help them understand the limitations and potential pitfalls. This way, students can develop a critical understanding of AI and make informed decisions when utilizing AI-generated content.

- **Support And Leadership:**

Teachers play a crucial role in providing support and leadership to students. While AI systems like ChatGPT can assist in various ways, teachers continue to be instrumental in guiding student progress, facilitating learning, and providing valuable feedback and assessment. Their expertise and personalized approach are essential in fostering a supportive and engaging educational environment.

- **Emotional Support And Personal Interaction:**

AI systems like ChatGPT cannot replace human contact and emotional support. Teachers have a crucial role in ensuring that personal interaction and the emotional needs of students are met. In addition to using AI systems, teachers should focus on creating a personal connection with students and fostering a collaborative learning environment.

Farrokhnia et al. conducted a SWOT analysis of ChatGPT and highlighted its strengths and weaknesses. The strengths include its sophisticated natural language model, which allows it to generate believable responses, its ability to self-improve, and its capacity to provide personalized and real-time responses. However, there are also weaknesses to consider, such as the lack of deep understanding, difficulty in assessing response quality, the risk of bias and discrimination, and the absence of higher-order thinking skills.

Indeed, chatbots like ChatGPT have many advantages, but they also come with potential dangers. Some researchers suggest that chatbots are better suited for providing additional information rather than resolving complex content issues. It's important to acknowledge both the benefits and limitations of chatbots in order to make informed decisions about their usage.

Negative effects of AI systems like ChatGPT may not apply to all students, and their likelihood can vary depending on specific circumstances and how they are used. It is crucial for educational institutions and teachers to ensure that AI systems are employed correctly and responsibly. This includes providing appropriate guidance, support, and training to students to help them understand the limitations of AI and how to interpret the responses generated.

To minimize any potential negative effects, it is important to strike a balance between human and AI-based education. Developing critical thinking, problem-solving skills, and fostering social interaction in students remain essential. Teachers should actively participate in the process by monitoring the functioning of AI systems and assisting students in using them correctly.

#### **5. CONCLUSION:**

Chatbots have their advantages, but they can't fully replace human emotional support and interactive learning. They rely on accurate data and algorithms to provide reliable answers. When it comes to using chatbots in education, responsible design and implementation are crucial. Teachers and educational institutions should ensure that chatbots are used correctly to support students in their learning and development.

The future of education is indeed moving towards a combination of technology and human interaction. AI and chatbots offer opportunities for personalized and interactive learning, as well as improving the efficiency of the educational process. Instead of displacing teachers, these technologies should be implemented appropriately to enhance the learning experience.

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